Remarks

Claims 1-8, 13-16, 18 and 19 were rejected under 35 U.S.C. 102(b) as being anticipated by U.S. Patent No. 2,618,357 issued to Harlow ("Harlow"). Furthermore, claims 9-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Harlow in view of U.S. Patent No. 3,336,730 issued to McBride et al. ("McBride et al."). Claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over Harlow in view of International Patent Publication No. WO 01/70376. In addition, objections were made regarding typographical errors in the specification and in claim 12.

In this response, Applicants have amended paragraphs [0062] and [0063] of the specification and claim 12. Claims 1-14 and 16-19 remain pending in this application. Reconsideration and withdrawal of the rejections and objections in view of the amendments and following remarks is hereby respectfully requested.

A. Editorial Changes

The Examiner has pointed out typographical errors in paragraphs [0062] and [0063] of the specification and claim 12 of the application.

Applicants have made the editorial changes to those paragraphs and to claim 12 as suggested by the Examiner.

B. Rejections under 35 U.S.C. §102(b):

Claims 1-8, 13-16, 18 and 19 were rejected under 35 U.S.C. 102(b) as being anticipated by Harlow.

Harlow describes a frame diffusion apparatus for the separation and concentration of gases by diffusion.

Claim 1 recites a membrane module for hydrogen separation that includes, among other features, a stack of flat membrane packs, a feed space for a reformate gas disposed between every two membrane packs in the stack, and "a device for creating gas turbulence disposed in at least one of the feed spaces." Support for the feature is found in the Applicant's specification, for example, at paragraphs [0076] through [0080] (plate-shaped porous components 42) and in Fig. 12.

Applicants respectfully submit that Harlow does not describe at least the feature of a

device for creating gas turbulence disposed in a feed space.

The Examiner has identified the holes 68 of Harlow as corresponding to "a device for creating turbulence" because they would "cause the feed gas to diffuse out into the cylindrical shell for flow through the membrane device." Final Office Action, at page 3.

Applicants respectfully submit, however, that none of the holes 68 of Harlow are "disposed in at least one of the feed spaces" as recited in claim 1. "Feed spaces" are specifically defined in claim 1 as being "disposed between every two membrane packs in the stack." By contrast, holes 68 in Harlow are not disposed between any two membrane packs and therefore are not disposed in the feed spaces as that term is defined in the claim. Rather, the holes 68 in Harlow are disposed in members 66, which are secured to shell 10 at a substantial radial distance from the periphery of the stack. See column 8, lines 38-40 and figs. 1, 2, and 7. Furthermore, Harlow specifically states that "there is no direct path for flow of gas between the holes 68 and the passages between the frames 25". See column 8, lines 51-53. Indeed, to the extent that holes 68 are deemed to be devices for causing turbulence, Harlow actually teaches away from disposing them in any feed spaces between two membrane packs as recited in claim 1. Nor does Harlow teach or suggest any structure disposed in a feed space between any two membrane packs for creating gas turbulence.

Withdrawal to the rejections under 35 U.S.C. § 102(b) is respectfully requested.

C. Rejections of Claims 9-12 and 17 under 35 U.S.C. 103(a):

Claims 9-12 were rejected under 35 U.S.C. 103(a) as being unpatentable over Harlow in view of McBride et al. Claim 17 was rejected under 35 U.S.C. 103(a) as being unpatentable over Harlow in view WO 01/70376.

McBride et al. describes a hydrogen continuous production method and apparatus.

WO 01/70376, which is discussed thoroughly in Applicant's specification at paragraphs [0007] and [0008] describes a membrane module having a parallel flow that contains a plurality of flat membrane packs. A plurality of these membrane packs are stacked on top of one another forming a compact stack having flat lateral surfaces, feed spaces for reformate gas being kept open between the individual membrane packs using sandwiched feed frames.

Applicants respectfully submit that neither McBride et al. nor WO 01/70376 cures the deficiency of Harlow. Like Harlow, neither McBride it al. nor WO 01/70376 suggests any

device for creating turbulence disposed in at least one feed space between every two membrane packs in the stack.

Withdrawal of the rejections to dependent claims 9-12 and 17 under 35 U.S.C. § 103 is respectfully requested.

CONCLUSION

It is respectfully submitted that the application is now in condition for allowance.

Respectfully submitted,

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